

April 30, 2020

Arthur Burbank
USDA Forest Service
4350 South Cliffs Dr.
Pocatello, ID 83204

**Subject: Biological Selenium Removal Treatment Technology
 Water Treatment Pilot Study
 March 2020 Progress Report**

Dear Art,

This progress report summarizes key activities in March 2020 associated with Phase 2 of the Water Treatment Pilot Study located near Hoopes Spring. This Pilot Study is being conducted as part of the Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) to provide information on the effectiveness of the active biological treatment system in removing selenium and other COPCs from South Fork Sage Creek Springs and Hoopes Spring.

Work related to the approved Phase 2 Pilot Study continues at the site in accordance with the *Final Phase 2 Pilot Study Work Plan and Sampling and Analysis Plan, Ultra-Filtration/Reverse Osmosis and Biological Selenium Removal Fluidized Bed Bioreactor Treatment Technology* (Phase 2 WP/SAP).

Identification of Deliverables and Data Transmittals

There were no outstanding deliverables or transmittals for the month of March. At the time of this report, we have received laboratory data for Weeks 107 and 109. Preliminary laboratory data are presented in Table 1. The field data for the Weeks 107 and 109 sampling events is summarized in Table 2.

Completed Activities

The following activities associated with the Phase 2 Pilot Study were completed in March 2020:

- Continued system operation and treatment of selenium.

The Treatment System Pilot (TSP) influent total selenium concentration for Week 107 was 162 ug/L and Week 109 was 171 ug/L. The Treatment System Pilot effluent total selenium concentration for Week 107 was 30.9 ug/L and Week 109 was 21.8 ug/L. The average removal efficiency for March was approximately 85.8% for total selenium removal.

The average flow of the TSP for the month of March was 1,753 gpm. Since full scale operations began in early December 2017 approximately 1.895 billion gallons of impacted water has been treated. The mass of selenium removed from December 2017 through March 2020 is approximately 1,951 pounds.

Upcoming Activities

The following activities associated with the Phase 2 Pilot Study are planned through April 2020:

- Continue system monitoring in accordance with the sampling and analysis plan.

Please contact me if there are questions regarding this monthly progress report.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey Hamilton".

Jeffrey Hamilton
Environmental Engineer

cc:

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Table 1
Laboratory Results Focused Analyte List

Hoopes Springs Water Treatment Plant Pilot Study
Phase 2, Performance Monitoring

		Week 107			Week 109		
Station >>		Influent	Ultra Filtration Backwash	Effluent	Influent	Ultra Filtration Backwash	Effluent
Sample ID >>		SC0320-LSSHS-IN001	SC0320-LSSHS-UFB001	SC0320-LSSHS-EF001	SC0320-LSSHS-UFB002	SC0320-LSSHS-IN002	SC0320-LSSHS-EF002
Date >>		3/4/2020			3/18/2020		
Analyte	Units						
General Chemistry							
Ammonia, as N	mg/L	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
Biochemical Oxygen Demand	mg/L	2 U	2 U	2 U	2 U	2 U	2 U
TSS	mg/L	2 U	2 U	2 U	2 U	2 U	2 U
Nutrients							
Nitrate, as N	mg/L	0.41	0.91	0.25	0.44	0.15	0.94
Sulfide	mg/L	1 U	1 U	1 U	1 U	1 U	1 U
Phosphorus, Total	mg/L	0.0299	0.19	0.0318	0.0358	0.017	0.106
Metals and Metalloids							
Selenium, Dissolved	mg/L	0.185	0.0291	0.0297	0.173	0.028	0.0221
Selenium, Total	mg/L	0.162	0.0285	0.0309	0.171	0.0247	0.0218

Notes

Results presented are preliminary, and have not been validated at the time of this report.

U - Analyte not detected above the method detection limit (MDL).

J - Result is estimated.

Table 2
Field Water Quality Data

Hoopes Springs Water Treatment Plant Pilot Study
Phase 2, Performance Monitoring

		Parameter >>	Dissolved Oxygen	ORP	pH	SC	Temperature	Turbidity
		Units >>	mg/L	mV	SU	umhos/cm	C	NTU
Station	Sample ID	Date						
Week 107								
Influent	SC0320-LSSHS-IN001	3/4/2020	8.52	179	7.47	516	13.3	1.1
Ultra Filtration Backwash	SC0320-LSSHS-UFB001	3/4/2020	7.86	192	7.55	119	13.92	1.7
Effluent	SC0320-LSSHS-EF001	3/4/2020	10.15	187	7.26	558	13.1	1.1
Week 109								
Influent	SC0320-LSSHS-IN002	3/18/2020	11.57	192	7.3	524	13.2	0.5
Ultra Filtration Backwash	SC0320-LSSHS-UFB002	3/18/2020	6.85	171	7.41	162	13.28	2.1
Effluent	SC0320-LSSHS-EF002	3/18/2020	8.3	192	6.95	490	13.08	0.7

Notes: